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ABSTRACT

Over the past 20 years independent lines of research in the fields of classroom environment and student attitudes to Christianity have been conducted. A study brought these two fields together by investigating the relationship between student perceptions of religious classroom environment and their attitudes toward Christianity. A personal form of the Catholic School Classroom Environment Questionnaire (which assesses seven classroom environment dimensions) along with four Attitude to Christianity scales were administered to 1317 students in Australian Catholic secondary schools. Simple, multiple, and canonical correlation analyses revealed statistically significant relationships between dimensions of the classroom environment and the four attitude to Christianity measures. Findings provide evidence that positive classroom environments enhance students' attitudes to Christianity. Contains 8 tables of data and 49 references. (Author/BT)

ASSOCIATIONS BETWEEN PSYCHOSOCIAL ENVIRONMENT IN RELIGIOUS EDUCATION CLASSES AND STUDENT OUTCOMES

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ABSTRACT: Over the past 20 years, independent lines of research in the fields of classroom environment and student attitudes to Christianity have been conducted. This research brought these two fields together by investigating the relationship between student perceptions of religion classroom environment and their attitudes to Christianity. A personal form of the Catholic School Classroom Environment Questionnaire which assesses seven classroom environment dimensions and four Attitude to Christianity scales were administered to a sample of 1317 students in Australian Catholic secondary schools. Simple, multiple and canonical correlation analyses revealed statistically significant relationships between dimensions of the classroom environment and the four attitude to Christianity measures. This study provided evidence that positive classroom environments enhance students' attitudes to Christianity.

Like many western countries, Australia has a well-established and well-supported system of Catholic schools. While these schools have teaching and learning activities similar to any other school, their ultimate purpose is quite distinctive - to produce graduates who are committed to, and act upon, a Christian view of the world. As a means of producing graduates with this characteristic, Catholic schools should possess distinctive learning environments. This view was implicit in the original foundation of Australian Catholic schools last century and has been restated in Vatican II documents and various Australian Catholic church and school documents (Abbott, 1966; Bathersby, 1992; Congregation for Catholic Education, 1988; Queensland Catholic Education Commission, 1978).

It is reasonable to believe that Catholic schools cannot teach Christianity if the atmosphere enveloping the school and its classrooms is devoid of a Christian ethos. Buetow (1988) introduced the term *spiritual atmosphere* to describe the climate of respect, mutual aid, and evangelical joy; an enlivened Gospel spirit of charity and liberty; and the practice of collegiality, cooperation, participation, and co-responsibility that should pervade Catholic school classrooms. Leavey's (1972) seminal Australian research in Catholic secondary girls' schools concluded that unless the students' experiences of the procedures of their school is reinforcing the content of the Christian message, then that message tends not to be accepted. Specifically, Leavey found that school procedures, teachers' attitudes and personal relationships mediated what students learnt in religious education classes. That is, for a significant number of students, the medium was the message.

Research conducted by Fahy (1992) in the late 1970s established four school-related predictor variables of student's Christian Faith, one of which is the level of satisfaction in religious education classes. Flynn's (1993) research characterised the most effective Catholic schools not by their physical resources and buildings but by their outstanding social climates which give them a Catholic ethos or spirit. According to Flynn, a good Catholic school is an incredibly relational environment. Based on these studies, it is reasonable to hypothesise that the learning environment in religion classes is an important predictor of student attitudes to Christianity.

Because attitudes are often thought to govern behaviour, it is imperative that positive attitudes toward Christianity be a fundamental goal of Catholic schools. Evidence suggests a close relationship between attitudes toward religion and consequent religious behaviour (Gibson & Francis, 1989; Hyde, 1965). Longitudinal studies have reported high correlations between attitude to Christianity and both religious behaviour and religious involvement (Francis, 1989b). In Australia, the system of Catholic schools has been very important to the long-term survival of the Catholic Church. According to Mannix, the most outspoken of all Australian bishops, Catholic schools were the ante-chamber of the Church and that without the schools, the Churches would be empty (Fogarty, 1959). Additionally, the evangelical missions of the Church could be jeopardised if the schools failed to produce graduates who are positively disposed towards Catholic Christianity. Therefore, it is important that teachers and school administrators be informed about variables which contribute to the formation of student attitudes to Christianity.

All Australian Catholic secondary schools have specific lessons in Religious Education (often called Religion) and it is important to the inculcation of positive values to Christianity that the environments in these classes reflect a Catholic ethos. Despite the very strong system of Catholic schools in Australia, no Australian studies have attempted to link

student perceptions of their religion classroom environment with their attitudes to Christianity. The present study responds to this void. Before details of the present study's design and results are provided, a brief review of prior classroom environment and attitudes to Christianity research is provided.

Background

Classroom Environment

Empirical research shows that psychosocial dimensions of the classroom environment are strong predictors of student attitudes across a range of subject areas of the formal school curriculum (Fraser, 1994, 1998). Previous studies conducted in science classrooms have established consistent and convincing support for the predictive validity of student perceptions of the classroom learning environment in accounting for appreciable amounts of variance in student cognitive outcomes and attitudes toward science (see e.g., McRobbie & Fraser, 1993). In Singapore, Wong and Fraser (1994) employed the Science Laboratory Environment Inventory to establish positive associations between Student Cohesiveness, Integration, Rule Clarity and Material Environment in chemistry classes and students' attitudes to chemistry. An Australian study involving secondary school biology classes found clear links between students' perceptions of the classroom environment, achievement and attitudinal outcomes (Henderson, Fisher, & Fraser, 1995). In an analogous way, the influence of the psychosocial dimensions of environment in religious education classes might be expected to be a significant predictor of attitudes to Christianity.

Other studies have used classroom environment scales as dependent variables in investigating variations in environment across different settings. Studies in the United States have shown that classroom environment varies between school type (Trickett, 1978) and between coeducational and single-sex schools (Trickett, Trickett, Castro, & Schaffner, 1982). The particular approach used in most of this research has been to define classroom environment in terms of the perceptions of students and teachers. Historically, this idea can be traced to Lewin's (1936) field theory.

Some areas of contemporary classroom environment research include assessing preservice, novice and expert teachers' perceptions of their classroom environment (Bartelheim, 1998; O'Connor & Fish, 1998), investigating gendered learning environments in single-sex and mixed-sex classes (Rennie & Parker, 1996) and establishing links between students' cultural factors and students' perceptions of the learning environment (Waldrip & Fisher, 1998). Recent studies have investigated links between school-level and classroom-level environments (Dorman, Fraser, & McRobbie, 1997) and the relationship between teacher personality and interpersonal behaviour (Fisher, Kent, & Fraser, 1998). These studies highlight the growing recognition of the learning environment as a central component of the lived curriculum of schools. Research on the environment in Catholic school religion classes has employed the Class form of the CSCEQ (Dorman, 1997a, 1997b). This study revealed differences in religion classroom environment among different types of Catholic high schools (viz. coeducational, boys', girls'), differences in religion classroom environment according to grade, and differences between students' and teachers' perceptions of the religion classroom environment.

An important direction of recent classroom environment research has been the use of *Personal Forms* in contrast to *Class Forms* of the assessing instrument which were used in earlier studies. According to McRobbie, Fisher, and Wong (1998), Personal Forms ask students to report their personal perceptions of their role in the learning environment rather than their perceptions of the learning environment of the class as a whole. The use of the Personal and Class Forms of the Science Laboratory Environment Inventory (SLEI) in the one cross-national study revealed that the Personal and Class Forms each accounted for unique variance in outcomes (viz., student attitudes) that could not be explained by the other form (Fraser & McRobbie, 1995).

Using the Catholic School Classroom Environment Questionnaire (CSCEQ: Dorman, 1997a,), research revealed differences in religion classroom environment among different types of Catholic secondary schools (viz. coeducational, boys', girls'), differences in religion classroom environment according to year level, and differences between students' and teachers' perceptions of the religion classroom environment (Dorman, 1997b; Dorman, Fraser & McRobbie, 1997).

Attitude to Christianity

Over the past three decades, a substantial number of research studies have investigated student attitudes to Christianity. It is important to distinguish between *attitude to Christianity* and *religious attitude*. Francis and Kay (1984) define attitude to Christianity as an affective construct: the degree of favourableness with which a student approaches religion. By contrast, religious attitude is an appreciation of the religious dimension of life (see Turner, 1980). An individual could have a very positive attitude to Christianity and yet hold a negative religious attitude or vice-versa (Francis & Kay, 1984). This distinction is analogous to the difference between attitude towards science and scientific attitude which has become firmly established in science education literature (Gardner, 1975). The present research focuses on attitude to Christianity.

Research evidence suggests that student attitudes towards religion are influenced by gender, age, religious behaviour and parents' religious behaviour (Francis & Kay, 1984; Greer, 1971; Wright & Cox, 1967). The vast majority of studies about attitude to Christianity have been conducted in the United Kingdom with studies investigating the influence of age (Francis, 1989a), location (Gibson & Francis, 1989; Greer & Francis, 1991), school type (Boyle & Francis, 1986), Christian tradition (Greer & Francis, 1990), and Catholic identity (Curran & Francis, 1996). Much of this research has employed the Francis Attitude to Christianity scale to assess students' attitude to Christianity (Francis, 1989b).

There are several reasons for questioning the relevance of these studies to contemporary Australian Catholic schools. First, a substantial period of time has elapsed since many of these studies were conducted and it is well acknowledged that Catholic schools have changed substantially during this period (Dwyer, 1986; Flynn, 1993). For example, the involvement of teaching religious orders in schools has diminished markedly over the past 20 years. Second, as indicated above, this research was conducted predominantly in schools in the United Kingdom. Third, and most important, these studies did not investigate the quality of the religion classroom environment as a possible predictor of student attitude to Christianity.

The present study conducted in a sample of Catholic secondary schools in Australia addresses these deficiencies.

Design of Present Study

Aims of the Research

The research reported in this paper had three specific aims:

- to validate a personal form of the CSCEQ for use in Catholic secondary school religion classes,
- to validate attitude to Christianity scales that would form outcome measures for students in Catholic secondary school religion classes, and
- to investigate associations between dimensions of religion classroom environment and dimensions of attitudes to Christianity in Catholic secondary school classrooms.

Sample

A random sample of 20 Catholic secondary schools from one Catholic diocese in New South Wales, Australia was invited to participate in the study. These schools were identified using information provided by the Diocesan Catholic Education Office which has overall administrative responsibility for schools in the diocese. Of these schools, 17 elected to participate in the study. The sample consisted of four boys', five girls' and eight coeducational schools which reflected the diversity in the diocesan school population. Where possible, two classes of Year 9 Religious Education and Year 12 Religious Education were surveyed in each school. The total sample consisted of 1317 students whose ages ranged from 13 to 18 years of age. In New South Wales, students are usually 14 or 15 years of age in Year 9 and 17 or 18 years of age in Year 12. Table 1 provides descriptive information for this sample. Although school personnel (usually the Religious Education Coordinator) selected these classes, it is important to note that students in a particular year level are almost always assigned to Religious Education classes in Catholic schools on a random basis. Accordingly, the chance of the school selecting a biased sample was quite low.

TABLE 1
DESCRIPTION OF SAMPLE BY SCHOOL TYPE AND YEAR LEVEL

Year Level	Sample Size			
	School Type			Total
	Boys'	Girls'	Coeducational	
Year 9	8 (205)	10 (262)	14 (381)	32 (848)
Year 12	2 (38)	6 (155)	12 (276)	20 (469)
Total	10 (243)	16 (417)	26 (657)	52 (1,317)

Note. The number of students is given in parentheses.

This study required the assessment of the environment in religion classrooms and student attitudes to Christianity. A Personal Form of the CSCEQ was used to assess classroom environment. The original Class Form of the CSCEQ consisted of 66 items assigned to seven underlying scales, namely, Student Affiliation, Interactions, Cooperation, Task Orientation, Order and Organisation, Individualisation and Teacher Control. Details on its development and validation are provided elsewhere (Dorman, 1997a, 1997b). Because the present study required the collection of outcome data in addition to environment data, it was decided to shorten the CSCEQ to 49 items to reduce respondent fatigue. These items were selected using validation data from the CSCEQ's original development and validation. An important characteristic of the CSCEQ is that it provides coverage of Moos's (1979) three general categories of human environments: Relationship dimensions (the nature and intensity of personal relationships), Personal Growth dimensions (personal development and self-enhancement), and System Maintenance and System Change dimensions (extent to which the environment is orderly, clear in expectations, maintains control and is responsive to change). Items of the CSCEQ use a five point Likert response format (viz., Strongly Agree, Agree, Neither/Not Sure, Disagree, Strongly Disagree). Seventeen items of the modified Personal Form of the CSCEQ are reverse scored as they are negative statements. Descriptive information on the seven scales of the CSCEQ are provided in Table 2.

TABLE 2
DESCRIPTIVE INFORMATION FOR THE PERSONAL FORM OF THE CATHOLIC SCHOOL CLASSROOM ENVIRONMENT QUESTIONNAIRE

Scale Name	Scale Description	Number of Items	Sample Item	Moos's Schema
Student Affiliation	Extent to which students know, help and are friendly towards each other.	7	I know other students very well. (+)	R
Interactions	Extent to which teacher-student interactions emphasise a concern for the personal welfare and social growth of the student.	7	I get on well with my teacher. (+)	R
Cooperation	Extent to which students cooperate rather than compete with each other.	7	I am willing to help students who are having trouble with their work. (+)	P
Task Orientation	Extent to which it is important to complete activities planned and to stay on the subject matter.	7	Almost all my class time is spent doing work. (+)	P
Order & Organisation	Emphasis on students behaving in an orderly, quiet and polite manner, and on the overall organisation of classroom activities.	7	I fool around in this class. (–)	S
Individualisation	Extent to which students are allowed to make decisions and are treated differently according to ability, interest and rate of working.	7	I am allowed to choose the activities I do in the classroom. (+)	S
Teacher Control	The number of rules, how strictly rules are enforced and how severely infractions are punished.	7	I don't have to stick to the rules in this class. (–)	S

Note. R: Relationship P: Personal Development S: System Maintenance and System Change

The instrument used to assess student attitudes to Christianity was developed specifically for this study after reviewing Francis' (1989b) Attitude to Christianity Scale Form ASC4B and research conducted by Turner (1980) and Greer (1982) in the United Kingdom and Fahy (1992) and Flynn (1993) in Australia. An original intention of this research was to develop and validate six scales that would assess students' attitudes to six important dimensions of Christianity: Prayer, God, Jesus, Bible, Christian Practice, and Social Justice. As discussed in the instrument validation section of this paper, it was found that Attitude to Prayer, Attitude to God and Attitude to Jesus items could not be separated into three distinct factors. Accordingly, the final form of the instrument used in this study consisted of 25 items assigned to four scales: Attitude to Prayer, God and Jesus, Attitude to the Bible, Attitude to Christian Practice and Attitude to Social Justice. Three negatively-worded items are reverse scored. Table 3 provides descriptions of these scales, the number of items per scale and a sample item for each scale.

TABLE 3
DESCRIPTIVE INFORMATION FOR FOUR ATTITUDE TO CHRISTIANITY SCALES

Scale Name	Scale Description	Number of Items	Sample Item
Attitude to Prayer, God & Jesus	Extent to which students have a positive attitude towards Christian prayer, God and Jesus.	6	God helps me to lead a better life. (+)
Attitude to the Bible	Extent to which students have a positive attitude towards the Bible.	4	I think the Bible is out of date. (–)
Attitude to Christian Practice	Extent to which students have a positive attitude towards practice in their Christian Church.	3	I think going to church is a waste of time. (–)
Attitude to Social Justice	Extent to which students have a positive attitude towards social justice in the wider community.	4	People of different race, nationality or religion should be respected by all Australians. (+)

Data Analysis

Because the sampling unit was the class rather than the individual, the class mean was used as the unit of analysis. Using the individual as the unit of analysis with a sample of 1317 students may result in the estimate of the sampling error being too low with subsequent analyses being statistically significant but not practically significant (Daniel, 1977). The result of any statistical test can be can be called into question if there is not a match between the unit of analysis and the primary sampling unit because an unjustifiably small estimate of the sampling error is used (Ross, 1978). Accordingly, scale scores for each student were used to calculate class means for each of the seven classroom environment and four attitude to Christianity scales. The final data set consisted of 52 class means for each of these 11 scales.

To report the strength of association between classroom environment and attitude to Christianity, simple, multiple and canonical correlation analyses were performed. Previous outcome-environment studies in secondary schools have usually controlled for certain

student characteristics such as general ability so that the variance explained by such predictors is removed. Because the present study involved attitude to Christianity, an attribute that has no demonstrated empirical link with general ability, it was decided that controlling for general ability would not be necessary.

A simple correlational analysis was used to investigate the relationship between each classroom environment scale and each attitude scale. For each classroom environment dimension, a stepwise multiple correlation analysis explored models using classroom environment scales as possible predictors of each attitude scale. The use of multiple correlation reduces the risk of an inflated Type I error rate associated with a series of simple correlational analyses. In this study, the commonly accepted forward selection criterion (*probability of F-to-enter)* was set at .05 and the removal criterion (*probability of F-to-remove)* was set at .10. The standardised regression coefficient (β) was used to identify which classroom environment scales were statistically significant predictors of attitude scales.

Canonical correlation was used to establish the strength of the relationship between the set of correlated classroom environment scales and the set of correlated attitude scales. It is more parsimonious than multiple correlation and overcomes the possible inflated Type I error problem in multiple correlation due to relationships among the dependent variables (Stevens, 1992). The canonical correlation coefficient (R_c) represents the highest correlation between two transformed variables – one formed by a linear combination of dependent variables and the other formed by a linear combination of the independent variables. Additionally, because R_c^2 cannot be used to interpret variance overlap between the school environment and classroom environment variables, a redundancy analysis that provides meaningful information on variance overlap was conducted (Stewart & Love, 1979).

Validation of Instruments

Sample

The validation data reported here are based on the sample of 1317 students from the 52 classes in 17 Catholic secondary schools in New South Wales used in the main study. Table 1 describes the sample in more detail. Because analyses used the class mean as the unit of analysis, validation data for both the individual and class mean as units of analysis are reported below as recommended by Sirotnik (1980).

Catholic School Classroom Environment Questionnaire

Internal consistency reliability. Estimates of the internal consistency of the seven scales of the CSCEQ were calculated using Cronbach's coefficient alpha. Table 4 shows coefficient alpha for each scale of the CSCEQ using the individual student and class mean as units of statistical analysis. As expected, alpha coefficients based on class means are somewhat larger than those obtained with the individual as the unit of analysis (Fraser, 1986). These values suggest that, apart from the Individualisation scale, each scale has acceptable internal consistency for either the individual or the class mean as the unit of analysis. For both units of analysis, the Individualisation scale does not have satisfactory reliability due to low scale variances. Removal of any one item did not improve scale reliability and the results of subsequent analyses involving this scale need to be treated with caution.

TABLE 4
VALIDATION DATA AND SCALE STATISTICS FOR THE
CLASSROOM ENVIRONMENT INSTRUMENT
(N = 1,317 students in 52 classes)

	Alpha Reliability		Mean Correlation		ANOVA Results		Scale Statistics[a]	
Scale	Student	Class Mean	Student	Class Mean	F (51, 1266)	Eta^2	Mean	Standard Deviation
Student Affiliation	.66	.82	.24	.44	3.1*	.13	24.77	1.37
Interactions	.88	.95	.35	.38	3.4*	.14	26.20	2.25
Cooperation	.73	.89	.33	.42	5.4*	.20	25.98	1.88
Task Orientation	.75	.86	.33	.43	4.0*	.16	21.45	2.02
Order & Organisation	.78	.89	.32	.42	5.5*	.20	21.89	2.29
Individualisation	.45	.41	.16	.12	2.2*	.08	18.63	0.96
Teacher Control	.69	.87	.27	.33	5.3*	.18	25.02	1.81

*$p < .001$
[a] Scale statistics are based on class means.

Discriminant validity. Table 4 also reports data about the discriminant validity of the scales using the mean correlation of a scale with the remaining six scales as an index. These data indicate that the scales do overlap but not to the extent that would violate the psychometric structure of the instrument. Additionally, the data compare favourably with discriminant validity data of other well-established classroom environment instruments (see Fraser, 1998).

Ability to differentiate between classes. As shown in Table 4, one-way ANOVAs for classroom environment scales with the student as the unit of analysis and class membership as the main effect showed that each scale of the instrument differentiated significantly between classes ($p < .001$). The *eta*^{2} statistic, which is a ratio of "between" to "total" sums of squares (Cohen & Cohen, 1975), indicates that the proportion of variance explained by class membership ranged from 8% for the Individualisation scale to 20% for the Cooperation and Order and Organisation scales.

Attitude to Christianity Scales

Item and factor analyses. Attitude scale data were subjected to factor and item analyses. Although it was originally intended to have six distinct scales to assess student attitudes to Prayer, God, Jesus, Bible, Christian Practice, and Social Justice. However, principal components factor analysis (with varimax rotation) using the individual as the unit of analysis extracted only four factors accounting for 70.3% of the variance (see Table 5). An analysis using the class mean as the unit of analysis confirmed the same factor structure and accounted for 80.3% of the variance. In both analyses, the factor structure was consistent with

the four scales in Table 3. The a priori Attitude to Prayer, Attitude to God and Attitude to collapsed to form the Attitude to Prayer, God and Jesus scale. Subsequent item-scale correlations confirmed that all items had been assigned to the appropriate scale and that each item made an appreciable contribution to that scale's internal consistency.

TABLE 5
FACTOR ANALYSIS OF 17 ATTITUDE TO CHRISTIANITY ITEMS
(N = 1,317 students in 52 classes)

Item	Attitude to Prayer, God & Jesus	Attitude to the Bible	Attitude to Christian Practice	Attitude to Social Justice
1	.84			
2	.76			
3	.81			
4	.71			
5	.77			
6	.78			
7		.76		
8		.66		
9		.79		
10		.73		
11			.85	
12			.82	
13			.53	
14				.66
15				.74
16				.74
17				.71

Note. Factor loadings below .30 have been omitted.

Internal consistency reliability. Estimates of the internal consistency of the four attitude to Christianity scales were calculated using Cronbach's coefficient with the individual student and class mean as units of statistical analysis (see Table 6). These values indicate very good internal consistency.

Discriminant validity. Data shown in Table 6 indicate that the scales do overlap. This is to be expected given the nature of the scales and that the sample of students was from Catholic schools. However, on the basis of the factor analyses and the conceptual distinctiveness of each scale, their retention as separate scales was maintained.

TABLE 6
VALIDATION DATA AND SCALE STATISTICS FOR
FOUR ATTITUDE TO CHRISTIANITY SCALES
(N = 1,317 students in 52 classes)

	Alpha Reliability		Mean Correlation		ANOVA Results		Scale Statistics[a]	
Scale	Student	Class Mean	Student	Class Mean	$F(51, 1266)$	Eta^2	Mean	Standard Deviation
Attitude to Prayer, God & Jesus	.92	.97	.53	.69	4.9*	.17	22.63	2.49
Attitude to the Bible	.86	.93	.53	.65	3.0*	.11	11.54	1.46
Attitude to Christian Practice	.85	.94	.54	.67	3.7*	.13	9.19	1.22
Attitude to Social Justice	.71	.89	.34	.36	4.6*	.16	15.91	1.25

* $p<.001$
[a] Scale statistics are based on class means.

Ability to differentiate between classes. One-way ANOVAs for each attitude scale with the student as the unit of analysis and class membership as the main effect showed that each scale differentiated significantly between classes ($p<.001$) (see Table 6). The eta^2 statistic indicates that the proportion of variance explained by class membership ranged from 11% for the Attitude to the Bible scale to 18% for the Attitude to Prayer, God and Jesus scale.

Results

As shown in Table 7, 21 of the 28 simple correlations between the seven classroom environment scales and the four Attitude to Christianity scales were statistically significant ($p<.05$), a result which is 15 times that which could be expected by chance. All of these correlations were positive.

The use of multiple correlation examined relationships between each of the four attitude scales and the set of seven classroom environment scales. Table 7 shows multiple correlation coefficients for these analyses. To assist with the interpretation of the results, Table 7 also reports standardised regression coefficients (beta weights) for the relationship between each attitude to Christianity scale and each classroom environment scale in the particular multiple correlation. For the Attitude to Prayer, God and Jesus scale, one statistically significant predictor was found: Teacher Control ($\beta = .42$, $p<.05$). Attitude to the Bible had one statistically significant predictor, Task Orientation ($\beta = .38$, $p<.05$). Teacher Control was the only statistically significant predictor of Attitude to Christian Practice ($\beta = .37$, $p<.05$). Finally, the Attitude to Social Justice scale had two statistically significant predictors: Cooperation ($\beta = .97$, $p<.001$), and Teacher Control ($\beta = -.36$, $p<.05$).

TABLE 7
SIMPLE AND MULTIPLE CORRELATIONS BETWEEN SEVEN CLASSROOM ENVIRONMENT SCALES AND FOUR ATTITUDE TO CHRISTIANITY SCALES
(N = 52 class means)

Attitude to Christianity	Classroom Environment Scale														Multiple Correlation (R)
	Student Affiliation		Interactions		Cooperation		Task Orientation		Order & Organisation		Individual-isation		Teacher Control		
	r[a]	β[b]	r	β	r	β	r	β	r	β	r	β	r	β	
Attitude to Prayer, God & Jesus	.51***	.04	.38**	.18	.50***	.15	.47***	-.01	.46***	.01	.21	.15	.51***	.42*	.64***
Attitude to the Bible	.40**	-.18	.42**	.14	.40**	.08	.60***	.38*	.54***	.08	.16	.16	.50***	.30	.66***
Attitude to Christian Practice	.42**	-.01	.26	-.06	.45**	.15	.48***	.10	.46***	.19	.09	.08	.52***	.37*	.60***
Attitude to Social Justice	.45**	-.05	.36*	.31	.73***	.97***	.26	-.03	.30*	-.09	.25	-.22	.16	-.36*	.81***

*$p < .05$ **$p < .01$ ***$p < .001$
[a] simple correlation coefficient
[b] standardised regression coefficient

Canonical correlation analysis revealed two statistically significant correlations between the set of classroom environment scales and the set of Attitude to Christianity scales ($p < .001$). Because canonical correlation analyses can be unreliable if the ratio of cases to variables is low (Stevens, 1992), it was decided to interpret only the first statistically significant canonical root ($R_c = .82$) (see Table 8). Interpretation of the correlations between the original variables and the canonical variate and the standardised canonical coefficients revealed that high levels of Cooperation in the classroom were associated with more positive Attitudes to Social Justice. A redundancy analysis (Stewart & Love, 1979) indicated that the total variance overlap of the classroom environment scales and the Attitude to Christianity scales for the two significant canonical correlations ($p < .05$) was 46.5%. For the first canonical variate, the classroom environment scales accounted for 23.0% of the variance in Attitude to Christianity scales.

TABLE 8
CANONICAL CORRELATION RESULTS
(N = 52 class means)

Variable	Standardised Canonical Coefficient	Correlation with Canonical Variate
Classroom Environment		
Student Affiliation	.01	.55
Interactions	.34	.39
Cooperation	1.21	.90
Task Orientation	–.15	.25
Order & Organisation	-.11	.32
Individualisation	–.29	.29
Teacher Control	–.39	.18
Attitude to Christianity		
Attitude to Prayer, God & Jesus	.14	.44
Attitude to the Bible	–.28	.30
Attitude to Christian Practice	.12	.35
Attitude to Social Justice	.99	.99
	$R_c = .82^*$	

* $p<.001$

Discussion

As the present research represents the first attempt to link classroom environment in religion classrooms and attitude to Christianity, there are no previous studies with which to compare the findings. Each of the results of the previous section can be interpreted in its own right. The 21 statistically significant positive correlations between classroom environment scales and attitude to Christianity scales suggest that the classroom environment is an important variable that religious education teachers need to monitor.

Fourteen of these correlations are sufficiently large to indicate that the particular classroom environment scale accounted for more that 20% of the variance in the associated Attitude to Christianity scale. For example, student perceptions of the level of Task Orientation in the religion classroom accounted for 36.0 % of the variance in Attitude to the Bible scores.

A review of the beta weights for the multiple correlations (see Table 7) and the scale standard deviations (see Tables 4 and 6) suggest a degree of educational significance to these empirical findings. For example, provided other classroom environment scores remain constant, increasing the level of Teacher Control by one standard deviation (i.e. 1.81) would increase Attitude to Prayer, God, and Jesus by .42 standard deviations (i.e. .42 x 2.49 = 1.05), but decrease Attitude to Social Justice by .36 standard deviations (i.e. .36 x 1.25 = .45). Given that the range of possible scores for the Attitude to Prayer, God, and Jesus scale and Attitude to Social Justice are 6 - 30 and 4 - 20 respectively, these effects can be considered educationally significant.

Four particular results of these analyses are noteworthy. First, Attitude to the Bible was related strongly to Task Orientation, Order and Organisation and Teacher Control in religion classrooms. The Attitude to the Bible scale provides information on a traditional dimension of Christianity. These three classroom environment scales reflect a more traditional view of classrooms and it is reasonable that classrooms high in these three areas would report higher levels of Attitude to the Bible.

Second, the simple correlation showed that 27% of the variance in Attitude to Christian Practice was explained by Teacher Control. As Attitude to Christian Practice refers to students' attitudes towards their Christian church, it is plausible that the level of Teacher Control in the religion classroom will be related positively to Attitude to Christian Practice. Christian Practice *per se* is about compliance and acceptance of the ritual of the church. Teachers who wish to improve student Attitude to Christian Practice should recognise that good teacher control and classroom management are associated with an enhanced Attitude to Christian Practice.

Third, it is noteworthy that Teacher Control correlated strongly with Attitude to Prayer, God, and Jesus, Attitude to the Bible and Attitude to Christian Practice but not with Attitude to Social Justice. In fact, the beta weight (-.36) of the multiple correlation analysis revealed Teacher Control to be a significant negative predictor of Attitude to Social Justice. On this basis, Attitude to Social Justice was clearly distinguishable from the remaining three scales.

Fourth, and most important, the simple, multiple and canonical correlations indicated that a high level of Cooperation among students in the religious education classroom is strongly related to the development of a positive student Attitude to Social Justice. In fact, Cooperation accounted for 53.3 % of the variance in Attitude to Social Justice scores. The beta weights in the multiple correlation suggest that, provided other classroom environment scores remain constant, increasing the Cooperation score by one standard deviation (i.e. 1.88) increases the Attitude to Social Justice score by .97 standard deviations (i.e. 1.21). This indicates a strong link between Cooperation and Attitude to Social Justice. Although Student Affiliation and Interactions accounted for 20.3% and 13.0% respectively of the variance in Attitude to Social Justice scores, Cooperation was a much more potent predictor. These three classroom environment scales focus on Relationship and Personal

Development dimensions of the psychosocial environment. Teachers wishing to develop positive attitudes to Social Justice should ensure that classrooms are warm, friendly, and show a genuine concern for students. Furthermore, classroom activities need to encourage students to cooperate with each other and interact positively with the teacher. It is important to note that the parsimony of canonical correlation reduced the relationship between classroom environment and attitude to Christianity largely to this important relationship between Cooperation and Attitude to Social Justice.

Conclusion

The study reported in this article extends prior classroom environment research in three ways. First, it validated a personal form of the CSCEQ for use in religious education classrooms. Second, it established four factor-analytically derived scales to assess dimensions of attitude to Christianity. Third, it was the first investigation of student of student outcomes and environment in Catholic secondary school religion classes. Because the analyses of this study were correlational in nature, it cannot be assumed that religion classroom environment causes particular student outcomes. Controlled intervention studies in which the religion classroom environment is deliberately manipulated are needed to establish causation. This study acknowledges that other variables (e.g. religious behaviour and parents' religious behaviour) have been shown to influence student attitudes towards Christianity. Nevertheless, the present study is a starting point for further correlational studies that will increase confidence in asserting that environment in religion classes is a determinant of students' attitude to Christianity.

The development of positive attitudes towards Christianity in students has been an essential goal of Australian Catholic schools since their establishment in the early 1800s. Historically, the ability of Catholic schools to provide a cohort of practising Catholics was considered essential to the Church's survival in the mixed Australian community (Fogarty, 1959). In the 1990s, the Church still needs its schools to develop of positive attitudes to Catholic Christianity in students so that they will show positive religious behaviour later in life. The research reported in this article suggests that religious education teachers can make a significant contribution to this endeavour by monitoring the psychosocial dimensions of religion classrooms. Importantly, the strong positive correlations between classroom environment dimensions and attitude to Christianity scales indicate that students need to experience high quality, relational classroom environments if positive attitudes to Christianity are to be engendered in students.

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